ADEQ Arizona Department of Environmental Quality
Janice K. Brewer, Governor
Henry R. Darwin, Director

DRAFT FACT SHEET

ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

FACT SHEET

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a wastewater treatment plant with a design capacity of 0.120 million gallons per day (MGD) and thus is considered to be a minor facility under the NPDES program. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 et. seq. This permit is proposed to be issued for a period of 5 years.

Permittee's Name:	Town of Winkelman
Mailing Address:	206 Giffin Avenue Winkelman, AZ 85192
Facility Name:	Town of Winkelman Wastewater Treatment Plant
Facility Location:	425 West Quarelli Street Winkelman, AZ 85292
Contact Person(s):	Manuel B. Aguirre Jr., Mayor (520) 356-7854
AZPDES Permit No.	AZ0020176
Inventory No.	101902

I. STATUS OF PERMIT(s)

The Town of Winkelman has applied for a renewal of their Arizona Pollutant Discharge Elimination System (AZPDES) permit to allow the discharge of secondary treated domestic wastewater from the Town of Winkelman Wastewater Treatment Plant (WWTP) in Winkelman, Arizona to the Gila River in Gila County, Arizona. This application was received by the Arizona Department of Environmental Quality (ADEQ) on June 15, 2013, and was determined to be administratively complete on August 15, 2013.

Based on a review of the application, the facility remains consistent with the Regional Water Quality Management Plan.

The Town of Winkelman currently has an Aquifer Protection Permit (APP) No. P101902 which regulates discharges to the local aquifer. ADEQ records indicate that the permittee has not applied for coverage under a multi-sector general permit.

II. GENERAL FACILITY INFORMATION

The Town of Winkelman WWTP is located approximately one half mile southwest of downtown Winkelman and approximately 100 feet north of the Gila River in Gila County, Arizona.

The applicant operates a publicly owned treatment works (POTW) or wastewater treatment plant (WWTP) that serves the Winkelman community, with a service population of approximately 340 people. The WWTP is part of a sanitary sewer system that receives domestic wastewater from residential and commercial sources in Winkelman. There are no significant industrial dischargers connected to the treatment works.

Treatment processes consist of a manual bar screen, aeration, clarification, chlorination and dechlorination. The permittee disposes of biosolids by retaining sludge in on-site holding tanks for up to two years. At that time it is pumped out and transported for final disposal at a landfill, wastewater treatment plant, or other facility permitted to accept sludge of this quality.

The proposed AZPDES permit will authorize discharge of 0.120 MGD of treated effluent to the Gila River. Discharge flow records submitted during the existing permit term indicate the facility discharges continuously at an approximate daily average rate of 0.032 MGD.

III. RECEIVING WATER

The State of Arizona has adopted water quality standards to protect the designated uses of its surface waters. Streams have been divided into segments and designated uses assigned to these segments. The water quality standards vary by designated use depending on the level of protection required to maintain that use.

The receiving water for the Town of Winkelman WWTP Outfall 001 is the Gila River (San Carlos Indian Reservation to the Ashurst-Hayden Dam) in the Middle Gila River Basin.

Outfall 001 is located at: Township 5 South, Range 15 East, Section 24

Latitude 32° 59’ 06”, Longitude 110° 46’ 28”

Note: The latitude and longitude have been corrected from the previous permit.

This segment of the Gila River is not on the 303(d) list, and there are no TMDL issues associated. The outfall discharges to, or the discharge may reach, a surface water listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1.

The Gila River has the following designated uses:

Aquatic and Wildlife warmwater (A&Ww)
Full Body Contact (FBC)
Fish Consumption (FC)
Agricultural Irrigation (AgI)
Agricultural Livestock watering (AgL)

Given the uses stated above, the applicable narrative water quality standards are described in A.A.C. R18-11-108, and the applicable numeric water quality standards are listed in A.A.C. R18-11-109 and in Appendix A thereof. There are two standards for the Aquatic and Wildlife uses, acute and chronic. In developing AZPDES permits, the standards for all applicable designated uses are compared and limits that will protect for all applicable designated uses are developed based on the standards.

IV. DESCRIPTION OF DISCHARGE

Because the facility is in operation and discharges have occurred, effluent monitoring data are available. The following is the effluent quality based on the laboratory data submitted.

Parameters	Units	Effluent Max	No. of Samples
Biochemical Oxygen Demand (BOD)	mg/L	220	35
Total Suspended Solids (TSS)	mg/L	34	35
Nitrate as Nitrogen	mg/L	28	35
E. coli	# / 100 mL	2400	42

The application indicates the following design removal rates: BOD 85%, and TSS 85%. During the permit term, the applicant submitted between 6 and 30 sets of data collected for organic compounds, oil & grease, and ammonia. In addition, 12 data sets for metals were submitted and 4 whole effluent toxicity (WET) tests were reviewed. Further details regarding these data are presented in sections that follow.

V. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT

The files indicate the most recent inspection of this facility was in October 2012; no significant violations were noted as a result of this inspection. In preparing this permit, laboratory data and Discharge Monitoring Report files were reviewed for the years 2008 through 2013, and the following exceedances and potential violations were noted:

1. The facility had one exceedance each for BOD (220 mg/L) and TSS (34 mg/L) in September 2010 and December 2011, respectively.

2. Exceedances for *E. coli* were noted on July 14, 2011 (1400 cfu/100 mL), August 4, 2011 (2400 cfu/100 mL), October 21, 2011 (2400 cfu/100 mL), and December 6, 2011 (2000 cfu/100 mL).

3. The April 2010 Wet test failed for *P. promelas* and no record of any follow-up testing was found.

4. LOQs for most metals and inorganic parameters (including arsenic, copper, cyanide, and sulfides) were significantly above the permit limits and assessment levels, and lower LOQs should be achievable.

5. No TRC values were provided. All results were reported as NODI(B), but the LOD and LOQ were not provided as required by the permit.

6. Two Ammonia Data Logs were located in the file but were not the Ammonia Logs required in the current permit. All ammonia values were listed as NODI(B), but actual values are required to be reported.

7. No information regarding the disposal of sewage sludge has been provided. The last annual report received was submitted on February 15, 2006, for the calendar year 2005.

VI. PROPOSED PERMIT CHANGES

The following table lists the major changes from the previous permit in the draft permit.

Parameter	Existing Permit	Proposed permit	Reason for change
Antimony and Beryllium	Assessment level	Effluent characterization	Data submitted indicates no reasonable potential for an exceedance of a standard (RP).
Bromodichloromethane, dibromochloromethane, and carbon tetrachloride	No sampling required	Limited	Data submitted indicates RP exists.
Hydrogen sulfide	No sampling required	Assessment level and monitoring required only if sulfides detected.	New standard in 2009 – replaces standard for sulfides.
Iron	No sampling required	Assessment level	New standard added in 2009 for A&Ww use.
Latitude and longitude of Outfall 001	Latitude 32º 58' 54", Longitude 110º 46' 30"	Latitude 32º 59' 06", Longitude 110º 46' 28"	Correction.
Sulfides	Assessment level	Monitoring required as indicator parameter for hydrogen sulfide	Standard removed in 2009 – replaced with standard for hydrogen sulfide.
Whole effluent toxicity testing *Pimephales promelas*	Action level	Limit	Data submitted indicates RP exists.

Anti-backsliding considerations- "Anti-backsliding" refers to statutory (Section 402(o) of the Clean Water Act) and regulatory (40 CFR 122.44(l)) requirements that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the previous permit. The rules and statutes do identify exceptions to these circumstances where backsliding is acceptable. This permit has been reviewed and drafted with consideration of anti-backsliding concerns.

No limits have been removed from the permit. Limits are retained in the draft permit for parameters where reasonable potential for an exceedance of a standard (RP) continues to exist, or is indeterminate. In these cases, limits have been recalculated using the Arizona Water Quality Standards revised in 2009

and the method for calculating limits described in Section VII below. In some cases, based on changes in the WQS, this results in less stringent limits; this is considered allowable backsliding in accordance with 40 CFR 122.44(l)(2)(i). The limits for chlorine are less stringent in this permit due to a change in the standards.

VII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS (Part I in Permit)

When determining what parameters need monitoring and/or limits included in the draft Town of Winkelman WWTP permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.

Technology-based Limitations: As outlined in 40 CFR Part 133:
The regulations found at 40 CFR §133 require that POTWs achieve specified treatment standards for BOD, TSS, and pH based on the type of treatment technology available. Therefore, technology-based effluent limitations (TBELs) have been established in the permit for these parameters. Additionally, oil & grease (a technology-based standard) will be monitored with a limit based on best professional judgment (BPJ). The average monthly limit of 10 mg/L and daily maximum of 15 mg/L are commonly accepted values that can be achieved by properly operated and maintained WWTPs. This level is also considered protective of the narrative standard at A.A.C. R18-11-108(B).

Numeric Water Quality Standards: As outlined in A.A.C. R18-11-109 and Appendix A:
Per 40 CFR 122.44(d)(1)(ii), (iii) and (iv), discharge limits must be included in the permit for parameters with "reasonable potential", that is, those known to be or expected to be present in the effluent at a level that could potentially cause any applicable numeric water quality standard to be exceeded. "Reasonable potential" refers to the possibility, based on the statistical calculations using the data submitted, or consideration of other factors to determine whether the discharge may exceed the Water Quality Standards. The procedures used to determine reasonable potential (RP) are outlined in the *Technical Support Document for Water Quality-based Toxics Control (TSD)* (EPA/505/2-90-001). In most cases, the highest reported value for a parameter is multiplied by a factor (determined from the variability of the data and number of samples) to determine a "highest estimated value". This value is then compared to the lowest applicable Water Quality Standard for the receiving water. If the value is greater than the standard, RP exists and a water quality-based effluent limitation (WQBEL) is required in the permit for that parameter. RP may also be determined from BPJ based on knowledge of the treatment facilities and other factors. The basis for the RP determination for each parameter with a WQBEL is shown in the table below.

It is assumed that RP exists for exceedance of water quality criteria for the pollutants *E. coli* and total residual chlorine (TRC). These parameters have been shown through extensive monitoring of POTWs to fluctuate greatly and thus are not conducive to exclusion from limitation due to a lack of RP. Therefore the draft permit contains WQBELs for *E. coli* and TRC.

The proposed permit limits and/or ALs were established using a methodology developed by EPA. Long Term Averages (LTA) were calculated for each designated use and the lowest LTA was used to calculate the average monthly limit (AML) and maximum daily limit (MDL) necessary to protect all uses. This methodology takes into account criteria, effluent variability, and the number of observations taken to determine compliance with the limit and is described in Chapter 5 of the TSD. Limits/ALs based on A&W criteria were developed using the "two-value steady state wasteload allocation" described on page

99 of the TSD. When the limit/AL is based on human health criteria, the monthly average was set at the level of the applicable standard and a daily maximum limit was determined as specified in Section 5.4.4 of the TSD.

The limits and ALs in this permit were determined without the use of a mixing zone. Arizona state water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies for and is approved for a mixing zone. Since a mixing zone was not applied for or granted, all water quality criteria are applied at end-of-pipe.

Permit Limitations and Monitoring Requirements: The tables that follow summarize parameters that are limited in the permit and the rationale for that decision. Also included are some parameters that require monitoring without any limitations or that have not been included in the permit at all and the basis for that decision. The corresponding monitoring requirements are shown for each parameter. In general, the regulatory basis for monitoring requirements is per 40 CFR §122.44(i) *Monitoring requirements,* and 40 CFR §122.48(b), *Required monitoring*; all of which have been adopted by reference in A.A.C. R18-9-A905, *AZPDES Program Standards*.

Parameter	Lowest Standard/ Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP determination	Proposed Monitoring Requirement/ Rationale (1)
Flow	- - -	- - -	- - -	- - -	- - -	Discharge flow is to be monitored on a continual basis using a flow meter.
Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS)	30 mg/L 30-day average 45 mg/L 7-day average/ Technology-based limits 40 CFR 133.102	BOD: 220 mg/L TSS: 34 mg/L	BOD – 35 TSS – 35	N/A	TBELs for BOD and TSS are always included for WWTPs.	Monitoring for influent and effluent BOD and TSS to be conducted 1x /month using composite samples of the influent and the effluent. The sample type required was chosen to be representative of the discharge. The requirement to monitor influent BOD and suspended solids is included to assess compliance with the 85% removal requirement in this permit. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected.
Chlorine, Total Residual (TRC)	11 µg/L/ A&Ww chronic	< LOQ (LOQ not provided)	Sampled weekly	N/A	RP always expected when chlorine or bromine is used for disinfection.	TRC is to be monitored 1x /week as a discrete sample and a WQBEL is set. 40 CFR Part 136 specifies that discrete samples must be collected for chlorine. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected.
E. coli	30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 235 cfu /100 mL/ FBC	2400 cfu/100 mL	42	N/A	RP always expected for WWTPs. See explanation above.	*E. coli* is to be monitored 4x /month as a discrete sample and a WQBEL is set.
pH	Minimum: 6.5 Maximum: 9.0 A&Ww and PBC A.A.C. R18-11-109(B)	7.2 to 8.4 S.U.	Sampled weekly	N/A	WQBEL or TBEL is always included for WWTPs.	pH is to be monitored 1x /week using a discrete sample of the effluent and a WQBEL is set. 40 CFR Part 136 specifies that grab samples must be collected for pH. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected. pH sampling must also coincide with ammonia sampling when required.
Temperature	No applicable standard	24ºC	Sampled annually	N/A	N/A	Effluent temperature is to be monitored 1x /month by discrete sample to coincide with ammonia sampling when required. 40 CFR Part 136 specifies that discrete samples must be collected for temperature.
Total Dissolved Solids (TDS)	No applicable standard	900 mg/L	1	N/A	N/A	Monitoring required 1x /year for effluent characterization.

Parameter	Lowest Standard/ Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP determination	Proposed Monitoring Requirement/ Rationale (1)
Ammonia	Standard varies with temperature and pH	<0.5 mg/L	33	N/A	RP Indeterminate (4)	Monitoring required 1x /month by discrete sample, a limit is retained, and an ammonia data log is required. One sample must coincide with WET sampling to aid in the determination of the cause of toxicity, if toxicity is detected. Temperature and pH sampling must also coincide with ammonia sampling when required.
Nutrients (Total Nitrogen and Total Phosphorus)	No Applicable Standards	Nitrate as N – 28 mg/L P – 1.3 mg/L	Nitrate as N – 35 P – 1	N/A	N/A	Monitoring required 1x /quarter for nitrogen and 1x /year for phosphorus for effluent characterization.
Oil & Grease	BPJ Technology-based level.	<10 mg/L	6	N/A	RP Indeterminate (4)	Monitoring required 1x /year and TBELs are retained.
Antimony	30 µg/L/ A&Ww chronic	<9.6 µg/L <200 µg/L	11 1	27 ug/L	No RP	Monitoring required 1x /year in years 2, 3, and 4 of the permit term for effluent characterization.
Arsenic	30 µg/L/ FBC	<40 µg/L	10	120 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and a WQBEL is retained.
Beryllium	5.3 µg/L/ A&Ww chronic	<2 <3.2 µg/L	11 1	2.8 µg/L	No RP	Monitoring required 1x /year in years 2, 3, and 4 of the permit term for effluent characterization.
Cadmium (2)	3.91 µg/L/ A&Ww chronic	<3 µg/L 2.2	11 1	6.16 ug/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and an assessment level is retained.
Chromium (Total)	100 µg/L/ FBC	<30 µg/L <80 µg/L	11 1	84 µg/L	No RP	Monitoring required 1x /6 months as an indicator parameter for Cr VI.
Chromium VI	11 µg/L/ A&Ww chronic	<10 µg/L <100 µg/L	2 3	42 µg/L 420 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and an assessment level is retained.
Copper (2)	17 µg/L/ A&Ww chronic	<20 µg/L <100 µg/L	6 1	70 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and an assessment level is retained.
Cyanide	9.7 µg/L/ A&Ww chronic	<100 µg/L	11	290 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and a WQBEL is retained.
Hardness	No Applicable Standard. Hardness is used to determine standards for specific metal parameters.	213 mg/L (effluent average)	3	N/A	N/A	A&W standards for cadmium, chromium III, copper, lead, nickel, silver and zinc used for RP determinations were based on the average effluent hardness value of 213 mg/L. Monitoring for the receiving water is also required when present. Monitoring for hardness is required whenever monitoring for hardness dependent metals is required.
Hydrogen Sulfide	2 µg/L/ A&Ww chronic	No data	N/A	N/A	RP Indeterminate (no data)	Monitoring required 1x /6months for sulfides as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Iron	1,000 µg/L / A&Ww chronic	No data	N/A	N/A	RP Indeterminate (no data)	Monitoring required 1x /6 months and an assessment level is set.
Lead (2)	5.67 µg/L / A&Ww chronic	2.8 µg/L <40 µg/L	1 12	7.56 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and an assessment level is retained.
Mercury	0.01 µg/L/ A&Ww chronic	<1.0 µg/L	12	2.8 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and an assessment level is retained.

Parameter	Lowest Standard/ Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP determination	Proposed Monitoring Requirement/ Rationale (1)
Nickel (2)	98.6 µg/L/ A&Ww chronic		<50 µg/L <80 µg/L	9 3	140 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and an assessment level is retained.
Selenium	2 µg/L/ A&Ww chronic		<2.5 ug/L <20 µg/L	1 11	56 µg/L	RP Indeterminate (High LOQ)	Monitoring required 1x /6months and an assessment level is retained.
Silver (2)	12 µg/L/ A&Ww acute		<10 µg/L	5	42 µg/L	RP Indeterminate (Insufficient data)	Monitoring required 1x /6months and an assessment level is retained.
Sulfides	No Applicable Standard		<500 µg/L	5	N/A	N/A	Indicator parameter for hydrogen sulfide. Monitoring required 1x /6months. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Thallium	7.2 µg/L/ FC		<1.6 µg/L	10	2.2 µg/L	No RP	Monitoring required 1x /year in years 2, 3, and 4 of the permit term for effluent characterization.
Zinc (2)	222 µg/L/ A&Ww acute		<40 µg/L <500 µg/L	6 1	140 µg/L	RP Indeterminate (Insufficient data)	Monitoring required 1x /6months and an assessment level is retained.
Bromodichloro-methane	17 µg/L/ FC		32 µg/L	6	64 µg/L	RP exists	Monitoring required 1x /6months and a WQBEL is set.
Dibromochloro-methane	13 µg/L/ FC		14 µg/L	7	49 µg/L	RP exists	Monitoring required 1x /6months and a WQBEL is set.
Carbon tetrachloride	2 µg/L/ FC		19 µg/L	2	140 µg/L	RP exists	Monitoring required 1x /6months and a WQBEL is set.
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A)(6)	*Pseudo-kirchneriella subcapitata (3)*	1 TUc (5)	3 (5)	N/A	RP Indeterminate (4)	Monitoring required 1x /year in years 2, 3, and 4 of the permit term and an action level is retained.
		Pimephales promelas	1.25 TUc (5)	3 (5)	N/A	RP exists	Monitoring required 1x /year in years 2, 3, and 4 of the permit term and a WQBEL is set.
		Ceriodaphnia dubia	1 TUc (5)	3 (5)	N/A	RP Indeterminate (4)	Monitoring required 1x /year in years 2, 3, and 4 of the permit term and an action level is retained.

Footnotes:

(1) The monitoring frequencies above are required when the facility is discharging. If there is no discharge, monitoring shall be conducted as shown in Part 1.D of the permit. (Exception: Discharge Flow metering should remain operational during periods of no discharge.) The resulting data will be needed to characterize the effluent and plant performance.
(2) Based on ADEQ monitoring data, average hardness in the Gila River upstream of the sampling point is 250 mg/L. However, the only hardness data submitted were effluent data with an average of 213 mg/L. The average effluent hardness was used to calculate the limits and assessment levels in permit because no receiving water data were available at the point of discharge.
(3) Formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata*.
(4) Monitoring with ALs or Action Levels always required for WWTPs for these parameters unless RP exists and limits are set.
(5) Four WET tests were conducted during the permit term, however, the November 2009 data were invalidated. Therefore only the data from the April 2010, October 2011, and October 2012 are reported here.

Assessment Levels:

Assessment levels (ALs) are established in the draft permit for: cadmium, chromium VI, copper, hydrogen sulfide, iron, lead, mercury, nickel, selenium, silver, and zinc. The basis for establishing ALs for each of these parameters is discussed in the table in Section VII above. ALs are listed in Part I.B of the permit. An AL differs from a discharge limit in that an exceedance of an AL is not a permit violation. Instead, ALs serve as triggers, alerting the permitting authority when there is cause for re-evaluation of RP for exceeding a water quality standard, which may result in new permit limitations. The AL numeric values also serve to advise the permittee of the analytical sensitivity needed for meaningful data collection. Trace substance monitoring is required when there is uncertain RP (based on non-detect values, or limited datasets) or a need to collect additional data or monitor treatment efficacy on some minimal basis. A reopener clause is included in the draft permit should future monitoring data indicate water quality standards are being exceeded.

The requirement to monitor for these parameters is included in the draft permit according to A.A.C. R18-11-104(C) and Appendix A. ALs listed for each parameter were calculated in the same manner that a limit would have been calculated (see Numeric Water Quality Standards Section above).

The permittee is required to sample hardness as $CaCO_3$ at the same time the trace metals are sampled because the water quality standards for some metals are calculated using the water hardness values. The hardness value of 213 mg/L (the average hardness of the effluent as supplied in the application) was used to calculate the assessment levels for cadmium, copper, lead, nickel, silver and zinc. Monitoring for the receiving water is also required when present.

The following trace substances were not included as limits or assessment levels in the draft permit due to a lack of RP based on best professional judgment (BPJ): barium, boron, nitrates, and manganese. The numeric standards for these pollutants are well above what would be expected from a WWTP discharge.

Effluent Characterization Testing:

In addition to monitoring for parameters assigned either a permit limit or an AL, sampling is required to assess the presence of pollutants in the discharge at certain minimum frequencies for additional suites of parameters, whether the facility is discharging or not. This monitoring is specified in Tables 4.a and 4.b., *Effluent Characterization Testing,* as follows:

- Table 4.a. – General Chemistry and Microbiology: ammonia, BOD-5, *E. coli*, total residual chlorine, dissolved oxygen, total Kjeldahl nitrogen, Nitrate/nitrite, oil and grease, pH, phosphorus, temperature, total dissolved solids, and total suspended solids.
- Table 4.b. – Selected Metals, Hardness, Cyanide, and WET.

NOTE: Some parameters listed in Tables 4.a. and 4.b. are also listed in Tables 1 or 2. In this case, the data from monitoring under Tables 1 or 2 may be used to satisfy the requirements of Tables 4.a. and/or 4.b., provided the specified sample types are the same. In the event the facility does not discharge to a water of the U.S. during the life of the permit, Effluent Characterization Testing of representative samples of the effluent is still required.

The purpose of *Effluent Characterization (EC) Testing* is to characterize the effluent and determine if the parameters of concern are present in the discharge and at what levels. This monitoring will be used to assess RP per 40 CFR 122.44(d)(1)(iii)). EC monitoring is required in accordance with 40 CFR 122.43(a), 40 CFR 122.44(i), and 40 CFR 122.48(b) as well as A.R.S. §49-203(A)(7). If pollutants are noted at levels of concern during the permit term, this permit may also be reopened to add related limits or conditions.

Whole Effluent Toxicity:

Whole Effluent Toxicity (WET) testing is required in the draft permit (Parts I.C. and IV) to evaluate the discharge according to the narrative toxic standard in A.A.C. R18-11-108(A)(5), as well as whether the discharge has RP for WET per 40 CFR 122.44(d)(iv). At a minimum, the results reported on an AZPDES application must include a test conducted within the past three years using multiple species.

ADEQ does not have a numeric standard for Whole Effluent Toxicity. However, ADEQ adopted the EPA recommended chronic toxicity benchmark of 1.0 TUc for a four day exposure period. Using this benchmark, the limitations and action levels for WET included in the draft permit were calculated in accordance with the methods specified in the *TSD*. The species chosen for WET testing are as recommended in the *TSD* and in *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*.

The draft permit requires monitoring once in years 2, 3, and 4 of the permit term for three surrogate species [*Ceriodaphnia dubia* (water flea) representing the invertebrate phyla; *Pimephales promelas* (fathead minnow), a vertebrate species; and *Pseudokirschneriella subcapitata* (formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata*, a green alga) for evaluating toxicity to plant life]. An exceedance of a limit or action level will trigger follow-up testing to determine if effluent toxicity is persistent. If toxicity above a limit or action level is found in a follow-up test, the permittee will be required to conduct a Toxicity Reduction Evaluation (TRE) and possibly a Toxicity Identification Evaluation (TIE) to identify the source of toxicity and reduce toxicity. These conditions are required to ensure that toxicants are not discharged in amounts that are toxic to organisms [A.A.C. R18-11-108(A)(5)]. A reopener clause is included in accordance with 40 CFR Parts 122 and 124 and AAC R18-9-B906.

The required WET monitoring frequency for this facility is consistent with the WET testing frequency required for facilities with a similar design flow. The draft permit requires WET test results to be reported on discharge monitoring reports and submittal of the full WET lab report to ADEQ.

Parameter	Proposed Monitoring Requirement
Whole Effluent Toxicity (WET)	WET testing for chronic toxicity shall be conducted once in years 2, 3, and 4 of the permit term. A more frequent sampling requirement is triggered if any of the WET limits or action levels listed in the permit are exceeded. The permit also contains provisions for investigating the sources of toxicity, if detected. Three composite samples are required to complete one WET test. A 24-hour composite sample type was chosen for WET testing in order to have consistency with the type of sample required for other parameters requiring monitoring in this permit. WET sampling must coincide with testing for all the parameters in Parts I.A and B of the draft permit, when testing of those parameters is required, to aid in the determination of the cause of toxicity if toxicity is detected. Additional procedural requirements for the WET test are included in the proposed permit.

VIII. NARRATIVE WATER QUALITY STANDARDS

All narrative limitations in A.A.C. R18-11-108 that are applicable to the receiving water are included in Part I, Sections E and F of the draft permit.

IX. MONITORING AND REPORTING REQUIREMENTS (Part II of Permit)

Section 308 of the Clean Water Act and 40 CFR Part 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The permittee has the responsibility to determine that all data collected for purposes of this permit meet the requirements specified in this permit and is collected, analyzed, and properly reported to ADEQ.

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. The permittee is responsible for conducting and reporting results to ADEQ on DMRs or as otherwise specified in the permit.

Monitoring locations are specified in the permit (Part I.A and Part I.J) in order to ensure that representative samples of the influent and effluent are consistently obtained.

The permit (Part II.A.2) requires the permittee to keep a Quality Assurance (QA) manual at the facility, describing sample collection and analysis processes; the required elements of the QA manual are outlined.

For the purposes of this permit, an "8-hour composite" sample has been defined as a flow-proportioned mixture of two or more discrete samples (aliquots) obtained at equal time intervals over an 8-hour period (if only two samples are collected, they should be taken approximately 8 hours apart). The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling.

These criteria for composite sampling are included in order to obtain samples that are representative of the discharge given the potential variability in the duration, frequency and magnitude of discharges from this facility.

Discrete (i.e., grab) samples are specified in the permit for parameters that for varying reasons are not amenable to compositing.

The requirements in the draft permit pertaining to Part II Monitoring and Reporting are included to ensure that the monitoring data submitted under this permit is accurate in accordance with 40 CFR 122.41(e).

Reporting requirements for monitoring results are detailed in Part II, Sections B.1 and 2 of the permit, including completion and submittal of Discharge Monitoring Reports (DMRs).

The permit also requires annual submittal of an ammonia data log that records the results for temperature, pH, and ammonia samples and date of sampling (Part II.B.3). This requirement is included because the normal method of reporting sampling results (on DMRs) is not sufficient for determining what standard applies. The ammonia standards in 18 A.A.C. 11, Article 1, Appendix A are contingent upon the pH and temperature at the time of sampling for ammonia; but the format for reporting on DMRs does not link a sample to its particular date of sampling.

Requirements for retention of monitoring records are detailed in Part II.D of the permit.

X. BIOSOLIDS REQUIREMENTS (Part III in Permit)

Standard requirements for the monitoring, reporting, record keeping, and handling of biosolids, as well as minimum treatment requirements for biosolids according to 40 CFR Part 503 are incorporated in the draft permit.

XI. SPECIAL CONDITIONS (Part V in Permit)

Operation

This permit condition requires the permittee to ensure that the WWTP has an operator who is certified at the appropriate level for the facility, in accordance with A.A.C. R18-5-104 through -114. The required certification level for the WWTP operator is based on the class (Wastewater Treatment Plant) and grade of the facility, which is determined by population served, level of treatment, and other factors.

Permit Reopener

This permit may be modified based on newly available information; to add conditions or limits to address demonstrated effluent toxicity; to implement any EPA-approved new Arizona water quality standard; or to re-evaluate reasonable potential (RP), if Assessment Levels in this permit are exceeded (A.A.C. R18-9-B906, and 40 CFR Part 122.62 (a) and (b)).

XII. ANTIDEGRADATION

Antidegradation rules have been established under A.A.C. R18-11-107 to ensure that existing surface water quality is maintained and protected. The discharge from the Town of Winkelman WWTP will be to a perennial water with Tier 2 antidegradation protection. This is a renewal permit for an existing facility with no new or expanded discharge, and the existing uses have been maintained. Therefore, an antidegradation review is not required at this time. Effluent quality limitations and monitoring requirements have been established under the proposed permit to ensure that the discharge will meet the applicable water quality standards. As long as the permittee maintains consistent compliance with these provisions, the designated uses of the receiving water will be presumed protected, and the facility will be deemed to meet currently applicable antidegradation requirements under A.A.C. R18-11-107(C).

XIII. STANDARD CONDITIONS

Conditions applicable to all NPDES permits in accordance with 40 CFR, Part 122 are attached as an appendix to this permit.

XIV. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-A907)
The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft AZPDES permit or other significant action with respect to an AZPDES permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908)
Rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-A908(B))
A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

EPA Review (A.A.C. R18-9-A908(C))
A copy of this draft permit and any revisions made to this draft as a result of public comments received, will be sent to EPA Region 9 for review. If EPA objects to a provision of the draft, ADEQ will not issue the permit until the objection is resolved.

XV. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division- Surface Water Permits Unit
Attn: Jacqueline Maye
1110 West Washington Street – Mail Code 5415A-1
Phoenix, Arizona 85007

or by contacting Jacqueline Maye at (602) 771-4607

XVI. INFORMATION SOURCES

While developing effluent limitations, monitoring requirements and special conditions for the draft permit, the following information sources were used:

1. AZPDES Permit Application Form 2A was received April 15, 2013 along with supporting data and a facility diagram.

2. Supplemental information to the application received by ADEQ on June 13, 2012, and July 23, 2013.

3. ADEQ files on the Town of Winkelman WWTP.

4. 208 Checklist from Edwina Vogan to Jacqueline Maye, dated April 30, 2013.

5. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters,* adopted January 31, 2009.

6. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.

7. Code of Federal Regulations (CFR) Title 40:
   Part 122, *EPA administered permit programs: The National Pollutant Discharge Elimination System.*
   Part 124, *Procedures for decisionmaking*.
   Part 133. *Secondary Treatment Regulation.*
   Part 503, *Standards for the Use or Disposal of Sewage Sludge*.

8. EPA Technical Support Document for Water Quality-based Toxics Control dated March, 1991.

9. *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, US EPA, May 31, 1996.

10. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA /821-R-02-013).

11. *U.S. EPA NPDES Permit Writers' Manual,* September 2010.